Allergic Rhinitis Update: Treatment and Diagnosis

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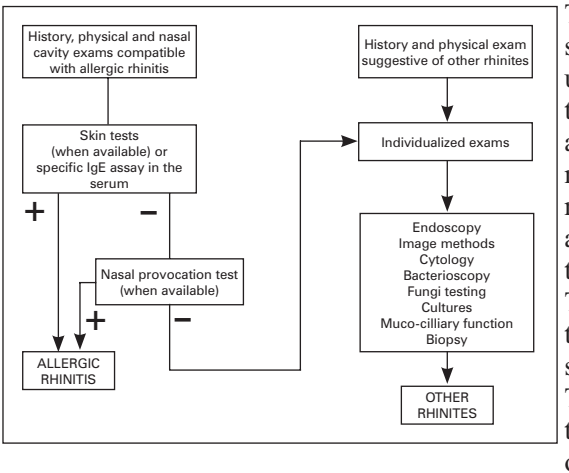
Allergic rhinitis is the inflammation of the nasal lining, resulting from a hypersensitivity reaction mediated by IgE antibodies against specific allergens. It is characterized by symptoms as nasal obstruction, watery rhinorrhea, sneezing and nasal pruritus, and these symptoms are spontaneously reverted or with treatment

Although this is a common disease, with high prevalence, very little is known about its epidemiology. Studies performed all over the world [1], as ISAAC (International Study of Asthma and Allergies in Childhood), have shown in some Brazilian cities, in 1996 and 2003, that between 25 and 34% of children and adolescents had nasal symptoms in the previous year [2].

The diagnosis of allergic rhinitis is based on history, physical exam of the nasal cavity, assay of specific IgE by skin tests or in the serum, and nasal provocation test (**Figure 1**)

Figure 1. Sequence for the Diagnosis of Allergic Rhinitis



The immediate hypersensitivity skin tests are the most widely used for allergy diagnosis, as their sensitivity and specificity are similar to those of in vitro methods, are less expensive, do not require venous puncture and a specialized laboratory, and the result is readily available.

The use of a nasal provocation test is still limited to research studies.

The treatment has several goals: to reduce the risk of asthma and other comorbidities, to improve the bronchial hyper-responsivity, to restore the quality of life and prevent the orofacial deformities and consequences of oral breathing.

A child with allergic rhinitis should be treated with an integrated management

approach, and not treat only the symptoms. This management involves education, prevention, pharmacotherapy and immunotherapy.

The education should not involve only the sick individual. When the patient is a child, parents should know the rhinitis symptoms and triggering factors, the comorbidities and reasons for treatment.

Prevention should also become a part of the whole family's daily life, as the most important allergens are in the household. Although there are no evidences proving the efficacy of measures to control the environment, allergic rhinitis patients should be informed about the various measures that can reduce exposure to triggering or worsening factors.

Pharmacological therapy (**Table 1**) is used to inhibit and reduce the inflammatory mediators involved in the immune response of sensitized individuals.

Table 1. Effect of drugs on the allergic rhinitis symptoms [3]

	Sneezing	Rhinorrhea	Nasal obstruction	Nasal pruritus	Ocular symptoms
Antihistamines					
oral	++	++	+	+++	++
nasal	++	++	+	++	0
ocular	0	0	0	0	+++
Cortico-esteroids					
nasal	+++	+++	+++	++	++
Chromones					
nasal	+	+	+	+	0
ocular	0	0	0	0	++
Decongestants					
nasal	0	0	++++	0	0
oral	0	0	+++	0	0
Antileucotrienes	0	+	++	0	++

Modified from van Cauwenberge et al. Consensus statement on the treatment of allergic rhinitis. Allergy 2000; 55(2):116-34 [3].

Histamine is the major inflammatory mediator in allergic rhinitis, and antihistamines H_1 are the most widely used drugs. They can be classified as classical antihistamines (ketotifen, clemastine, dexchlorpheniramine, hydroxyzine and promethazine), characterized by overcoming the blood-brain barrier, and non-classical or newer antihistamines (cetirizine, desloratadine, ebastine, epinastine, fexofenadine, levocetirizine, loratadine and rupatadine).

The ideal **antihistamines** should be efficient, have little or no side effects, an adequate safety profile for all age groups, be easy to administrate, have a rapid and prolonged effect, no interaction with other drugs, alcohol or foods, and improve the quality of life of the allergic child.

Only ketotifen, levocetirizine and desloratadine are allowed to be used in children younger than 2 years of age. Promethazine is contraindicated for children of this age group due to the risk of respiratory depression.

There are oral and **topical nasal decongestants** and they should not be used for more than five days. Their use should be avoided in infants because of the risk of severe toxicity.

Cortico-steroids are the most potent drugs, acting on several cells and chemical mediators involved in the allergic response. Topical cortico-steroids are efficient against all nasal symptoms, including nasal obstruction, and are superior to antihistamines in all allergic rhinitis symptoms. Some adverse events as nasal bleeding, septal perforation, irritation and sneezing bouts, headache and pharyngitis have been reported, but only sporadically. Long-term studies with budesonide, beclomethasone and momethasone to determine alterations in growth velocity did not find any relationship between the use of nasal topical cortico-steroids and reduction in growth velocity.

The prophylactic use of **disodium cromoglicate** before exposure to the allergen can be beneficial but does not alleviate symptoms during the allergy crisis. Ipratropium bromide acts only to control nasal secretion. The use of **leucotriene** receptor antagonists is indicated for children with concurrent asthma and rhinitis, rhinitis induced by acetylsalicylic acid and patients that have difficulties in adhering to treatment schedules with topical nasal medication. **Saline solution** for nasal hygiene has been used as an adjuvant therapy in allergic rhinitis, but its mode of action has not been established.

Specific immunotherapy with allergens reduces the degree of sensitization and, as a consequence, the inflammation caused by the allergy. Immunotherapy should be used when the IgE-mediated allergic sensitization has been proven, as well as the allergy role in triggering the child's symptoms. The result will depend on the antigen dose being used and should be individualized and permanently followed by the physician.

Immunotherapy is presently available by subcutaneous and sublingual administration.

References

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